

CLAIMS

What is claimed is:

1 A method for encoding control data in a video data stream, said method comprising the
5 steps of:

(a) generating an image data file comprising pixel representations of desired control data;

b) merging said image data file with an underlying video data file to produce a master video data file.

10 2. The method of claim 1, further comprising the step of

c) recording said master video data file on a suitable storage medium.

3. The method of claim 2 wherein said storage medium is a video cassette.

4. The method of claim 1, wherein said image data file is merged with an underlying program video data file using a non-linear video editing system.

5. The method of claim 1 wherein said pixel representation of desired control data spans across one horizontal line of video information.

6. The method of claim 1 wherein said pixel representation of desired control data comprises at least two lines of video data.

7. The method of claim 1 wherein said pixel representation further includes an initialization sequence.

8. The method of clam 1 wherein said pixel representations generated in step (a) are added to the vertical blanking interval of said master video data file.

9. The method of claim 8 wherein said pixel representations generated in step (a) are added to Line 21 of the vertical blanking interval of said master video data file.

5 10. A method for encoding control data in a video data stream, said method comprising the steps of:

- (a) inputting control data;
- (b) generating a pixel representation of said control data; and,
- (c) adding said pixel representation of said control data to said video data stream.

10 11. The method of claim 10 wherein said video data stream includes a vertical blanking interval, and wherein said pixel representation of said control data is added to the vertical blanking interval of said video data stream.

15 12. A method for encoding control data in a video data stream, said method comprising the steps of:

- (a) inputting control data and command directives;
- (b) inserting said control data in a data structure according to said command directives, wherein elements of said data structure represent time points; and,
- (c) merging said control data with an underlying video data stream, wherein the arrangement of said control data in said data structure controls at least in part said merging step (c).

20 13. The method of claim 12 further comprising the step of:

- (d) converting said control data into byte code representations according to a predetermined specification, before said merging step (c).

25 14. The method of claim 13 wherein said video data stream is a digital video data stream; and wherein said merging step (c) comprises

(c1) inserting said control data converted in step (d) in said digital video data stream; and, (c2) editing said digital video data stream to accept said control data inserted in step (c1).

15. The method of claim 14 further comprising the step of

(c3) storing said digital video data stream edited in step (c2) on a suitable storage medium.

16. The method of claim 15 wherein said suitable storage medium is a digital video cassette.

17. The method of claim 14 further comprising the step of

(c3) transmitting said digital video data stream edited in step (c2):

18. The method of claim 14 wherein said control data inserted in step (c1) is inserted into the auxiliary data portion of said digital video data stream.

19. The method of claim 13 wherein said video data stream is an analog video data stream; and wherein said merging step (c) comprises

(c1) generating a sequence of image frames comprising pixel representations of said control data converted in said step (d); and,

(c2) merging said sequence of image frames with said analog video data stream.

~~20. A method for encoding control data in a video data stream, said method comprising the steps of:~~

(a) inputting a control data script, said control data script comprising command directives and control data;

(b) inserting said control data in a data structure according to said command directives, wherein elements of said data structure represent time points; and,

(c) for at least one element in said data structure, generating an image frame comprising a pixel representation of corresponding control data.

21. The method of claim 20 further comprising the step of

(d) merging said image frame with an image frame in said video data stream.

22. The method of claim 21 wherein said pixel representation is a gray-scale pixel representation.

23. The method of claim 21 wherein said merging step (d) comprises adding said pixel representation to the vertical blanking interval of an image frame in said video data stream.

24. The method of claim 22 said merging step (d) comprises adding said pixel representation to the vertical blanking interval of an image frame in said video data stream.

25. The method of claim 20 wherein said data structure comprises an array.

26. The method of claim 20 wherein said data structure comprises two parallel arrays.

27. The method of claim 26 wherein the elements in said parallel arrays correspond to the image frames in said video data stream.

28. A method for encoding control data in a video data stream, said method comprising the steps of:

(a) inputting a control data script, said control data script comprising command directives and control data;

(b) inserting said control data in a data structure according to said command directives, wherein elements in said data structure represent time points; and,

(c) for each element in said data structure, generating an image frame comprising a pixel representation of the corresponding control data.

29. The method of claim 28 further comprising the step of

(d) for each of said image frames generated in step (c), merging said image frame with a corresponding image frame in said video data stream.

30. The method of claim 29 wherein said pixel representation is a gray-scale pixel representation.

31. The method of claim 29 said merging step (d) comprises adding said pixel representation to the vertical blanking interval of an image frame in said video data stream.

32. The method of claim 29 said merging step (d) comprises adding said pixel representation to the vertical blanking interval of an image frame in said video data stream.

33. The method of claim 28 wherein said data structure comprises an array.

34. The method of claim 28 wherein said data structure comprises two parallel arrays.

35. The method of claim 34 wherein the elements in said parallel arrays correspond to the image frames in said video data stream.

36. The method of claim 28 further comprising the step of converting said control data according to a predetermined specification before performing the generating step (c).

37. A method for adding control data to underlying video data, said method comprising the steps of

(a) generating an image data file comprising a sequence of picture images, said picture images including a pixel image representation of desired control data;

(b) merging said image data file with an underlying program video data file to produce a master video data file.

38. An apparatus for encoding control data in a video data stream comprising:
a user interface facilitating input of control data;
means for generating a pixel representation of said control data.

39. The apparatus of claim 38 further comprising
means for adding said pixel representation of said control data to said video data stream.

40. An apparatus according to claim 38 wherein said generating means generates pixel representations of control data according to a predetermined specification.

41. The apparatus of claim 38 wherein said user interface facilitates input of command directives, and wherein said apparatus further comprises:
a computer readable memory including a data structure, wherein elements of said data structure represent time points;
processing means for inserting said control data in said data structure according to said command directives; and,
wherein said generating means generates an image frame comprising a pixel representation of the corresponding control data.

42. The apparatus of claim 38 wherein said user interface facilitates entry of an external data file comprising control data and command directives.

43. An apparatus for encoding control data in a video data stream, said video data stream including a vertical blanking interval, comprising:
a video editing device, wherein said video editing device maps at least one line of the vertical blanking interval of a video signal;
a user interface facilitating input of control data and command directives;
a computer-readable memory, said computer readable memory storing said control data and command directives;

processing means associated with said memory for generating pixel image representations of said control data;

wherein said video editing device merges said pixel representations of said control data with an underlying video data stream according to said command directives.

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44. The apparatus of claim 43 wherein said video editing device maps said pixel representations of said control data to a line in the vertical blanking interval of said video data stream.

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45. The apparatus of claim 43 wherein said memory includes a data structure, and wherein said processing means further stores said control data in said data structure according to said command directives.

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46. The apparatus of claim 45 wherein elements in said data structure correspond to image frames in said video data stream.

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47. An apparatus for encoding control data to video data stream, said video data stream including a vertical blanking interval, comprising:

video editing means for mapping video data;

wherein said video editing means maps at least one line of the vertical blanking interval of said video data;

first video image storage means associated with said video editing means for storing the video data;

a user interface facilitating input of control data and command directives;

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a computer-readable memory, said memory storing said control data and said command directives;

processing means associated with said input means and said memory for generating a sequence of image frames, at least one of said image frames comprising a pixel representation of said control data;

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wherein said video editing means is coupled to said first video image storage means and said processing means for merging said sequence of image frames with said video data.

48. The apparatus of claim 47 further comprising means for converting said control data
5 into byte code representations of said control data.

49. The apparatus of claim 47 wherein said processing means generates said sequence of image frames according to said command directives.

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